

# SMART DRIVING CARS



<http://smartdrivingcar.com/Reality-082816>

**Sunday, August 28, 2016**

MIT  
Technology  
Review

## **[Prepare to be Underwhelmed by 2021's Autonomous Cars](#)**

T. Simonite, Aug 23, "BMW, Ford, and Uber have all recently said they plan to have "fully autonomous" cars ready to drive themselves on the road in 2021 (see "2021 May Be the Year of the Fully Autonomous Car"). Ford says its fleet of vehicles will lack steering wheels and offer a robotic taxi service.

But don't expect to toss out your driver's license in 2021. Five years isn't long enough to create vehicles good enough at driving to roam extensively without human input, say researchers working on autonomous cars. They predict that Ford and others will meet their targets by creating small fleets of vehicles limited to small, controlled areas.

"Probably what Ford would do to meet their 2021 milestone is have something that provides low-speed taxi service limited to certain roads—and don't expect it to come in the rain," says Steven Shladover. ...Alain Kornhauser, ... "By then we may be able to define [a] 'fenced' region of space where we can in fact let cars out there without a driver," he says. "The challenge will be making that fenced-in area large enough so that it provides a valuable service."...Jeffrey Miller, ...says figuring out how sensors limit the situations a vehicle can reliably handle on its own is one of the most crucial challenges for companies working on autonomous driving. [Read more](#) *Hmmm...Achievable reality. Alain*

THE WALL STREET JOURNAL

WSJ

## **[World's First Self-Driving Taxis Hit the Road in Singapore](#)**

J. Watts, Aug 25, "Singapore became the first country in the world to launch a self-driving taxi service on Thursday, beating ride-hailing giant Uber Technologies Inc. by mere days to public road tests of a technology that could revolutionize the transport industry....Singapore's nuTonomy, founded by two researchers from the Massachusetts Institute of Technology, said Thursday it began testing a free taxi-hailing service in a small business district in Singapore called one-north, a campus-like space dominated by tech firms and biotechnology companies.

Other tech companies including Chinese internet giant Baidu Inc. have been testing self-driving cars on the roads for years, but this is the first time the vehicles have been open to public use.... NuTonomy's test vehicles, a Renault Zoe and Mitsubishi i-MiEV electric car, will have a computer engineer and backup human driver during the trial phase in case anything goes wrong, and can be hailed by select members of the public using a smartphone app, the company said. The one-north district is a self-contained area of about 0.8 square miles accessible by trunk roads but much quieter than most public roads in Singapore. NuTonomy said it would test its vehicles on a 6 kilometer (3.7 mile) route...." [Read more](#) *Hmmm... A very important start. "Geo-fenced" area not very large and not yet driverless, but another very important starting hurdle going a little faster than [CityMobil2](#). Alain*



### [Oh You'll Get Used to Robo-Cars—Uber Will Make Sure of It](#)

M. Rhodes, Aug 19, "...Today, Uber finds itself in a position where it makes more sense to develop an interface that behaves like a trusty chauffeur, rather than a co-pilot. It's a situation that semi-autonomous car manufacturers may not find themselves in for years to come—but Uber has a chance to start experimenting now. ...

Designing that interface will require a delicate balance. It should present passengers with enough information to put them at ease, but not so much that they feel responsible for the car's behavior. A town car driver wouldn't overwhelm you with data and graphics, and Uber's backseat tablets shouldn't either.

This is out of step with conventional wisdom surrounding interfaces in semi-autonomous vehicles. For instance: Audi's autonomous concepts feature a dash-mounted screen that communicates to the driver not only that the car sees the world around it, but also what the car thinks about that world and how it plans to navigate it safely. This information serves to put you, the driver, at ease—but not too at ease. Because this system's other job is to keep you informed. After all, these systems are only semi-autonomous. There's no telling when you might have to resume control of the vehicle.

But that system won't work for Uber. "Passengers going on this ride for the first time are going to wonder, am I expected to monitor each and every move?" says Nandita Mangal, who led the design on Delphi Automotive's autonomous car concept earlier this year. If you're Uber, that's the last thing you want. Not only does this defeat the entire purpose of a personal chauffeur, it's potentially stress-inducing. A passenger in the rear seat of an autonomous car can't take control of the wheel, even if she wants to.

Uber's interface will need to convey a tone of cool, confident decision-making. ..." [Read more](#) *Hmmm...Very interesting and important! Alain*

THE WALL STREET JOURNAL

WSJ

### [Tesla Raises Price of Autopilot Option by \\$500](#)

J. Stoll, Aug 26, "Tesla Motors Inc. raised the price of its driver-assist Autopilot option by 20%, or \$500, the latest move by the Silicon Valley auto maker to adjust prices and options on its electric vehicles.

The move comes the same week that the company made a more capable battery pack available for its Model S sedan and Model X sport-utility vehicle. The new 100 kilowatt-hour batteries will enable the sedan to achieve as much as 315 miles on a charge and significantly increase acceleration times, the company said on Tuesday. It also takes the price of the car to \$134,500.

Earlier in August, Tesla began offering a two-year, \$593 a month lease on its base Model S sedan. ...Analysts consider features like automatic braking or adaptive cruise control to be among the most profitable components of a new vehicle sale ....Honda Motor Co.'s system is considered less capable than Tesla's, but is about half the price. Volvo Car Corp. recently began selling its new S90 sedan with a standard "Pilot Assist" feature...." [Read more](#) *Hmmm...Glad to see the recognition of value in the marketplace. [Tesla complaints reported to NHTSA](#). Alain*

MarketWatch

### [Want to invest in self-driving cars? Check out the chips](#)

T. Poletti, Aug 27, "... Instead of rushing into the Sierra Foothills with all of the miners who in 1849 were seeking their fortunes panning for a limited vein of gold a lot more money was made by San Francisco entrepreneurs who sold supplies..." [Read more](#) *Hmmm...OK. Alain*

MORNING NEWS USA

### [Tesla News: Owner Blames Himself For Autopilot Crash This Time](#)

J. Ong, Aug 21, "Finally, there is one Tesla car driver who crashed his car and said he is at fault instead of the Tesla Autopilot.

On August 7, Tesla driver Mark Molthan was driving his Model S along highway 175 near Kaufman, Texas when the car suddenly swerved into a cable guardrail. At the time of the incident, Molthan's car was on Autopilot. Unlike other drivers who blamed the Tesla Autopilot system for their crashes, Molthan readily admitted he had not been paying close attention to his own driving around the time of the accident. In fact, he had reached into the glove compartment to get a piece of cloth and was busy cleaning the car's dashboard before the crash had taken place."I used Autopilot all the time on that stretch of the highway. But now I feel like this is extremely dangerous. It gives you a false sense of security..." [Read more](#) *Hmmm...Very important to figure out what was different this time. Reliability is absolutely necessary. Not necessarily every-where, but absolutely at some-where. Alain*

## USA TODAY

### [If you hate auto insurance, you'll love driverless cars](#)

A. Glenn, Aug 27, "Nobody likes shelling out for auto insurance. But given the greater financial burden of a car wreck, most of us simply grin and bear it, minus the grin. After all, mistakes happen and drivers are only human — for now.

But as we hurtle into the age of computer-operated, fully autonomous vehicles, car insurance as we know it is about to change — including how much we need to buy.... [Read more](#)

*Hmmm...Not only will you buy less, you will lessen substantially the self-insurance that everyone assumes, largely unknowingly. Insurance covers at best 50% of the direct dollars spent to fix crashes (car repairs, personal injury repairs, burial cost, etc.) and 0% of the societal costs (bereavement, lost productivity, refocusing, etc.) which are estimated to be twice the direct dollars. In the end insurance that we buy only pays for about 16% of the cost of crashes. So if we are excited about how much less insurance we are going to have to buy, we should be 5 times more excited about how our lives are going to be improved. Alain*

## The New York Times

### [Delphi and Mobileye to Produce System for Self-Driving Cars](#)

N. Boudette, Aug 23, "The race to build self-driving cars is becoming an increasingly crowded field. There are carmakers like Ford Motor intent on doing it themselves. There are ones like General Motors that are acquiring the technology companies they hope can make it happen.

And then there are suppliers, like Delphi Automotive and Mobileye, that intend to develop turnkey self-driving systems that automakers could build into their vehicles..." [Read more](#)

*Hmmm...Not much new here except the MobilEye-Delphi relationship and... " Not all carmakers predict that self-driving cars will proliferate rapidly. Honda Motor argues that more advanced technology is needed ... said Jim Keller, chief engineer at Honda's research center in Southfield, Mich.... Honda also says it believes cars need vehicle-to-vehicle, or V2V, communication devices that allow them to transmit their position and speed to other vehicles. "Radar or a camera can only see what it can see," he said. "But what's around the corner or behind a building? You need V2V for that." Hmmm...What??? Honda today somehow justifies selling cars to drivers that can't see around a corner or behind a building. Is he implying that these cars are safe only if driven by Superman! ??? Alain See also similar: [Lazy Automakers Can Just Buy Self-Driving Cars From Delphi](#)*



### [Research explores how road sign alternatives might affect driver safety](#)

Summer 2016, "The idea of fewer—or no—roadside signs holds appeal for highway departments (less maintenance) and drivers (less visual clutter). But if the information typically conveyed on signs—such as the speed limit—is given to drivers in another way, would it be safer? And how would drivers respond?"

Researchers at the University of Minnesota's HumanFIRST Laboratory recently tested how in-vehicle signing could warn drivers of changes in the environment and influence their behavior... At the moment, our on-chip lidar system can detect objects at ranges of up to 2 meters, though we hope to achieve a 10-meter range within a year. The minimum range is around 5 centimeters. We have demonstrated centimeter longitudinal resolution and expect 3-cm lateral resolution at 2 meters. There is a clear development path towards lidar on a chip technology that can reach 100 meters, with the possibility of going even farther." [Read more](#)

*Hmmm...Interesting research, but we are so far away from being able to accommodate the traveling public with "no roadsigns" renders that part of the research as largely irrelevant. Alain*



### [MIT and DARPA Pack Lidar Sensor Onto Single Chip](#)

C. Poulton, Aug 4, "Our lidar chips are produced on 300-millimeter wafers, making their potential production cost on the order of \$10 each at production volumes of millions of units per year. These on-chip devices promise to be orders of magnitude smaller, lighter, and cheaper than lidar systems available on the market today. They also have the potential to be much more robust because of the lack of moving parts. The non-mechanical beam steering in this device is 1,000 times faster than what is currently achieved in mechanical lidar systems, and potentially allows for an even faster image scan rate. This can be useful for accurately tracking small high-speed objects that are only in the lidar's field of view for a short amount of time, which could be important for obstacle avoidance for high-speed UAVs..." [Read more](#) *Hmmm... Very interesting.*

*Alain*



### [Get Under the Hood of Parker, Our Newest SOC for Autonomous Vehicles](#)

Aug, 2016, "NVIDIA today took the cloak off Parker, our newest mobile processor that will power the next generation of autonomous vehicles.

Speaking at the Hot Chips conference in Cupertino, California, we revealed the architecture and underlying technology of this highly advanced processor, which is ideally suited for automotive applications like self-driving cars and digital cockpits. [Read more](#) *Hmmm... Very interesting.*

*Alain*

## Some other thoughts that deserve your attention



### [As La Guardia Is Overhauled, the Check-In Line Starts at the Highway](#)

P. McGeehan, Aug 27, "Vice President Joseph R. Biden Jr.'s bleak assessment of La Guardia Airport as "third-world" propelled a complete reconstruction. But the path to a modern La Guardia was not supposed to include travelers dragging luggage through gridlocked traffic on a highway to catch their flights.

Now it does. The most ambitious airport project in the country, an eight-year, \$8 billion plan to turn La Guardia into a first-class travel hub, has barely begun, but social media has already been flooded with tales and images of taxis and buses mired in traffic jams, unable to get anywhere near terminals to pick up and drop off passengers....The Port Authority, Mr. Honig noted, has been advising travelers to use public transportation to get to the airport, but the only options are buses that have also been getting trapped in traffic..."[Read more](#) *Hmmm...So bad! Beyond comment! Alain*



### [One Star Over, a Planet That Might Be Another Earth](#)

K. Chang, Aug 24, "Another Earth could be circling the star right next door to us.

Astronomers announced on Wednesday that they had detected a planet orbiting Proxima Centauri, the closest neighbor to our solar system. Intriguingly, the planet is in the star's "Goldilocks zone," where it may not be too hot nor too cold. That means liquid water could exist at the surface, raising the possibility for life....Guillem Anglada-Escudé, an astronomer at Queen Mary University of London and the leader of the team that made the discovery [reported in the journal Nature](#), said, "We know there are terrestrial planets around many stars, and we kind of expected the nearby stars would contain terrestrial planets. This is not exciting because of this. The excitement is because it is the nearest one."..."[Read more](#) *Hmmm...Not surprising. Alain*

## [On the More Technical Side](#)

<http://orfe.princeton.edu/~alaink/SmartDrivingCars/Papers/>



### [Learning to Recognize Distance to Stop Signs Using the Virtual World of Grand Theft Auto 5](#)

A. Filiowicz, J. Liu, A Kornhauser, Aug 1 [Read more](#)



[The Interplay between Fleet-size, Level-of-Service, and Empty Repositioning Strategies in Large-scale, Shared-ride autonomous Taxis Mobility-on-Demand Scenarios](#)

S. Zhu, A. Kornhauser, Aug 1 [Read more](#)



[Synthetic Generation of Individual Vehicle-borne Person Trips That Characterize Individual Mobility Across the United States on a Typical Day](#)

K. Marocchini, A. Kornhauser, Aug 1 [Read more](#)

Half-baked stuff that probably doesn't deserve your time:



[Hackers Fool Tesla S's Autopilot to Hide and Spoof Obstacles](#)

A. Greenberg, Aug 4, "...Tesla owners shouldn't swear off autopilot yet—at least not for fear of sensor-jamming hackers. The demonstrations were performed mostly on a stationary car, in some cases required expensive equipment, and had varying degrees of success and reliability..." [Read more](#) *Hmmm...Houdini, PT Barnum, Bernie Madoff and countless used car salesmen have spoofed us to buy "snake oil". It is not news nor ground-braking research to find that AutoPilot's obstacle detection can be spoofed. At least the researchers point out..."*...Overall we hope people get from this work that we still need to improve the reliability of these sensors...." *Alain*

Calendar of Upcoming Events:



[Sept 15 & 16, 2016](#)

[Arlington, VA](#)



[Sept 19-21, 2016](#)

[Antwerp, Belgium](#)



[F1/10 Autonomous Racing Competition](#)

[Oct 1-2](#)

[Wean Hall, Carnegie Mellon U.](#)